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(19) (CA) **CANADIAN PATENT** (12)

(54) PRECISION POSITIONING DEVICE FOR TOOL BLADES  
AND THE LIKE

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U.S.A.

(21) APPLICATION No. 247,320

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No. OF CLAIMS 4

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Abstract of the Disclosure

Rotary motion is converted to linear motion by multiple thread sets which cooperate to provide precise control of the amount of rotary motion thus converted. As applied to a precision positioning device for a tool, blade or other object, the thread sets are preferably arranged in a serial and/or telescoped configuration. A relatively simple precision hand tool positioning device is realized by having one thread set arranged in a common direction but reduced pitch relative to the other set. The finiteness of the object positioning is further enhanced by moving it with respect to an inclined plane. A retaining device for gripping the element to be moved is directly associated with a shank having the smaller pitched thread set thereon. The shank is prevented from rotating but allowed to move linearly relative to a housing and the threads thereof engage a spindle which has another set of threads for engaging the housing. A calibrated indicator of the shank position in easily readable format is provided. A split collet for the shank with a spring biased collet clamp and actuator is particularly well-suited for use as a tool chuck especially useful for calibrated craftsman knives. A detent arrangement can be included with the housing.

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THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. Apparatus for providing precise linear positioning of a tool comprising:

housing means having a threaded portion thereon,

a spindle having first and second threaded sectors of different pitch, said first threaded sector engaging said threaded portion on said housing means,

chuck means including means at one end for gripping the tool and a threaded segment at the other end engaging the second threaded sector of said spindle, the threads of said segment and said second threaded sector being of a smaller pitch but common direction relative to the threads of said housing means and said first threaded sector, and

said chuck means being axially movable relative to said housing while being locked against rotary motion independently of said housing means whereby application of relatively large rotary motion to said spindle means results in relatively small linear motion of the tool.

2. Apparatus in accordance with claim 1, including calibrated indicating means having a slot running longitudinally of said housing with calibration marks included along at least one edge of said slot, and a movable indicator including at least one edge positioned interiorly to said housing so as to be visible through said slot.

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3. Apparatus in accordance with claim 1 wherein said chuck means includes a slot extending oriented transversely to the axis of said housing means, and gripping means including wedge means engaging the sidewalls of said chuck means on either side of said slot for selectably urging said sidewalls for closing said slot thereby clamping the tool within said slot.

4. Apparatus in accordance with claim 3 wherein a substantially flat lever is pivotally attached within said slot of said chuck means and extending externally through a channel in said housing means, said wedge means being attached to said lever means whereby release or clamping of the member within said slot of said chuck means can be selectably controlled by said lever.



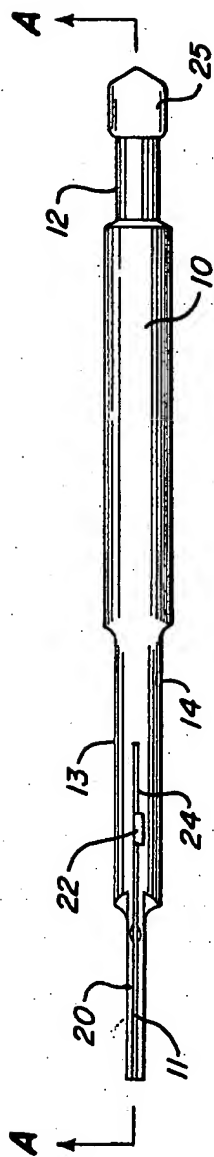


Fig - 2

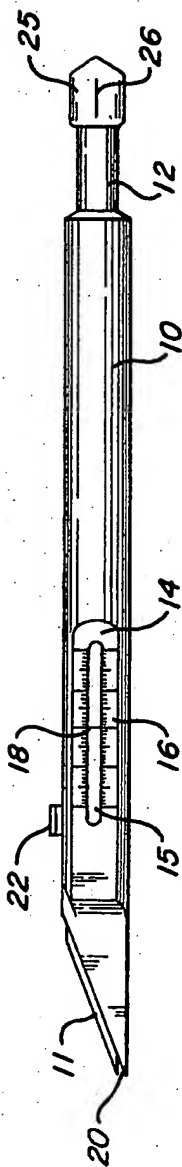


Fig - 1

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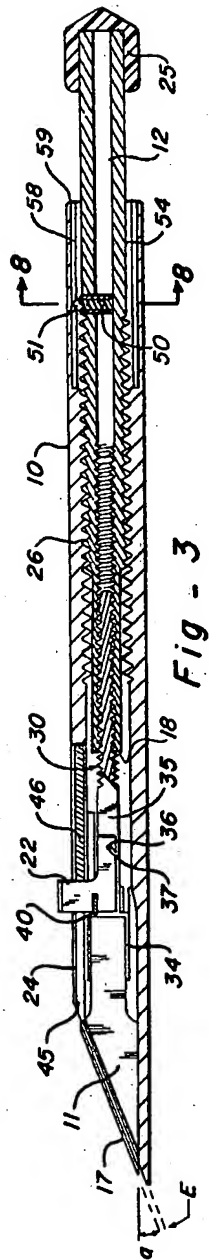


Fig - 3



Fig - 6



Fig - 7



Fig - 4

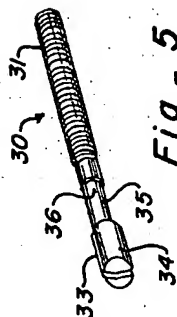


Fig - 5

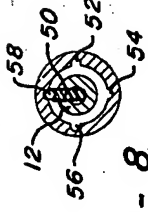


Fig - 8

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